CHAPTER-V
FINDINGS, RECOMMENDATIONS, DISCUSSION,
SUGGESTIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter enumerates the findings, interpretation, recommendations and suggestion for further research. The last step in research reporting is to sum up the findings arrived based on the analysis of data. The investigator has used both survey method to survey the influence of naturalistic intelligence and environmental awareness on teaching science among school teachers and collected data were statistically analyzed and the results are serialized.

5.2 FINDINGS OF THE STUDY

i. The Percentage analysis shows that the level of school teachers in naturalistic intelligence in total and its dimensions namely admiration, outdoor activities, global warming, biophilia and scientific hobbies is average (69%, 72.6%, 70.6%, 69% and 70.4%). Among the average values the level of involved in outdoor activities of school teachers is high (72.6%) and admiration and scientific hobbies are low (69%).

ii. The environmental awareness level of school teachers and its dimensions, namely personal cleanliness, knowledge, skills and Environmental values are average (57.8%, 53%, 49.2%, 64% and 71%). Among the average values, the awareness level of environmental values is high (64.2%) and skills is low (49.2%)
iii. The level of teaching science among school teachers is *average*. So the average value of the level of teaching science is (81.1%)

1. *The following are the findings of the study which describe about the level of Naturalistic intelligence and its dimensions of school teachers*

   1.1 a) 26.4% of male and 42.6% of female school teachers have high level of admiration.

   b) 28.4% of male and 44.2% of female school teachers have high level of outdoor activities.

   c) 27.4% of male and 40.4% of female school teachers have high level of global warming.

   d) 28.8% of male and 41.8% of female school teachers have high level of biophilia.

   e) 26.8% of male and 42.2% of female school teachers have high level of scientific hobbies.

   f) 25.8% of male and 44.6% of female school teachers have high level of naturalistic intelligence.

   1.2 a) 25.8% of graduate and 40.6% of post graduate school teachers have high level of admiration.

   b) 24.6% of graduate and 45.2% of post graduate school teachers have high level of involvement in outdoor activities.
c) 27% of graduate and 39.8% of post graduate school teachers have high level of global warming.

d) 27.8% of graduate and 41.2% of post graduate school teachers have high level of biophilia.

e) 28.2% of graduate and 40.8% of post graduate school teachers have high level of scientific hobbies.

f) 26.2% of graduate and 41.6% of post graduate school teachers have high level of naturalistic intelligence.

1.3 a) The school teachers who belong to hindus, chiristians and muslims religions have 43.4%, 8.2% and 20% high level of admiration respectively.

b) The school teachers who belong to hindus, chiristians and muslims religions have 46.4%, 9.4% and 15.4% high level of outdoor activities respectively.

c) The school teachers who belong to hindus, chiristians and muslims religions have 42.4% of, 9.4% and 16.4% high level of global warming respectively.

d) The school teachers who belong to hindus, chiristians and muslims religions have 44.4%, 9.6 % and 18.8% high level of biophilia respectively.

e) The school teachers who belong to hindus, chiristians and muslims religions have 43.4%, 10.2% and 16.6% high level of scientific hobbies respectively.
f) The school teachers who belong to hindus, christsians and muslims religions have 43%, 8.6 % and 17.8% high level of naturalistic intelligence respectively.

1.4 a) 41% of married and 26.2% of unmarried school teachers have high level of admiration.

b) 45.4% of married and 26.2% of unmarried school teachers have high level of involvement in outdoor activities.

c) 41.4% of married and 26.4% of unmarried school teachers have high level of global warming.

d) 41.2% of married and 27.8% of unmarried school teachers have high level of biophilia.

e) 43.2% of married and 26.2% of unmarried school teachers have high level of scientific hobbies.

f) 43.6% of married and 27.4% of unmarried school teachers have high level of naturalistic intelligence.

1.5 a) 30% of urban and 36.4% of rural school teachers have high level of admiration.

b) 8% of urban and 39.6% of rural school teachers have high level of involvement in outdoor activities.

c) 30.8% of urban and 37% of rural school teachers have high level of global warming.
d) 30% of urban and 39% of rural school teachers have high level of biophilia.

e) 30.6% of urban and 38.4% of rural school teachers have high level of scientific hobbies.

f) 30.4% of urban and 39.4% of rural school teachers have high level of naturalistic intelligence.

1.6 a) 10.2% of Government, 15.6% of Government aided and 40.6% of self-finance school teachers have high level of admiration.

b) 10.6% of Government, 16.2% of Government aided and 45.8% of self-finance school teachers have high level of involvement in outdoor activities.

c) 12% of Government, 15.2% of Government aided and 40.2% of self-finance school teachers have high level of global warming.

d) 11.6% of Government, 16.2% of Government aided and 41.2% of self-finance school teachers have high level of biophilia.

e) 10.6% of Government, 15.6% of Government aided and 43.2% of self-finance school teachers have high level of scientific hobbies.

f) 10.8% of Government, 15.4% of Government aided and 41.6% of self-finance school teachers have high level of naturalistic intelligence.

1.7 a) The school teachers who are members in NCC, NSS, NC and RRC have 36.8%, 12.2%, 9.2% and 11.2% of high level of admiration.
b) The school teachers who are members in NCC, NSS, NC and RRC have 33%, 14.4%, 8.8% and 9.4% of high level of outdoor activities.

c) The school teachers who are members in NCC, NSS, NC and RRC have 35.8%, 14.6%, 8.4%) and 8.2% of high level of global warming.

d) The school teachers who are members in NCC, NSS, NC and RRC have 37.8%, 14.2%, 8.6% and 10.2% of high level of biophilia.

e) The school teachers who are members in NCC, NSS, NC and RRC have 37.4%, 12%, 9.2% and 9.6% of high level of scientific hobbies.

f) The school teachers who are members in NCC, NSS, NC and RRC have 38.8%, 13.2%, 8.6% and 8.8% of high level of naturalistic intelligence.

1.8 a) The school teachers with less than 5 years experience and more than 5 years of experience have 35.6% and 30.8% of high level of admiration respectively.

b) The school teachers with less than 5 years experience and more than 5 years of experience have 37.4% and 35.2% of have high level of involvement in outdoor activities respectively.

c) The school teachers with less than 5 years experience and more than 5 years of experience have 35.6% and 32.2% of high level of global warming respectively.
d) The school teachers with less than 5 years experience and more than 5 years of experience have 36.8% and 32.2% of high level of biophilia respectively.

e) The school teachers with less than 5 years experience and more than 5 years of experience have 36.8% and 33.2% of high level of scientific hobbies respectively.

f) The school teachers with less than 5 years experience and more than 5 years of experience have 36% and 32% of high level of naturalistic intelligence respectively.

2. The following are the findings of the study which describe about the level of Environmental awareness of school teachers

2.1 a) 30% of male and 27.8% of female school teachers have high level of personal cleanliness.

b) 26.6% of male and 26.4% of female school teachers have high level of environmental knowledge.

c) 31% of male and 18.2% of female school teachers have high level of skill.

d) 24.2% of male and 40% of female school teachers have high level of environmental values.

e) 28.4% of male and 42.6% of female school teachers have high level of environmental awareness.
2.2 a) 24.2% of graduate and 33.6% of post graduate school teachers have high level of personal cleanliness.

b) 24% of graduate and 29% of post graduate school teachers have high level of environmental knowledge.

c) 17.6% of graduate and 20.8% of post graduate school teachers have high level of skill.

d) 24.2% of graduate and 40% of post graduate school teachers have high level of environmental values.

e) 25% of graduate and 35.2% of post graduate school teachers have high level of environmental awareness.

2.3 a) The school teachers who belong to hindus, christians and muslims religions have 39.8%, 6% and 18.6% of high level of personal cleanliness respectively.

b) The school teachers who belong to hindus, christians and muslims religions have 35.6%, 7.8% and 9.6% of high level of environmental knowledge respectively.

c) The school teachers who belong to hindus, christians and muslims religions have 41.2%, 9.4% and 17.8% of Muslims school teachers have high level of skill respectively.
d) The school teachers who belong to hindus, christians and muslims religions have 39.8%, 9.4% and 15.6% of high level of environmental values respectively.

e) The school teachers who belong to hindus, christians and muslims religions have 46%, 9.4% and 16.2% of high level of environmental awareness respectively.

2.4 a) 38% of married and 19.8% of unmarried school teachers have high level of personal cleanliness.

b) 31.6% of married and 21.4% of unmarried school teachers have high level of environmental knowledge.

c) 25.6% of married and 23.4% of unmarried school teachers have high level of skill.

d) 42.6% of married and 21.6% of unmarried school teachers have high level of environmental values.

e) 41.2% of married and 28.6% of unmarried school teachers have high level of environmental awareness.

2.5a) 23.6% of urban and 34.2% of rural school teachers have high level of personal cleanliness.

b) 24.8% of urban and 28.2% of rural school teachers have high level of environmental knowledge.
c) 17% of urban and 33.4% of rural school teachers have high level of skill.

d) 31.4% of urban and 42.4% of rural school teachers have high level of environmental values.

e) 33.2% of urban and 38.2% of rural school teachers have high level of environmental awareness.

2.6 a) 13% of Government, 11.8% of Government aided and 33% of self-finance school teachers have high level of personal cleanliness.

b) 9.2% of Government, 12.2% of Government aided and 31.6% of self-finance school teachers have high level of environmental knowledge.

c) 11.2% of Government, 7% of Government aided and 24.2% of self-finance school teachers have high level of skill.

d) 12.2% of Government, 16.6% of Government aided and 45.2% of self-finance school teachers have high level of environmental values.

e) 9.8% of Government, 14.4% of Government aided and 36.4% of self-finance school teachers have high level of environmental awareness.

2.7 a) The school teachers who are members in NCC, NSS, NC and RRC have 28.2%, 15%, 6% and 8.2% of high level of personal cleanliness.

b) The school teachers who are members in NCC, NSS, NC and RRC have 31.8%, 8.6%, 7.4% and 5% of high level of environmental knowledge.
c) The school teachers who are members in NCC, NSS, NC and RRC have 22.8%, 12.8%, 7.4% of and 9.8% of high level of skill.

d) The school teachers who are members in NCC, NSS, NC and RRC have 35.2% of NCC, 14.6%, 8.4% and 7% of high level of environmental values.

e) The school teachers who are members in NCC, NSS, NC and RRC have 34%, 12%, 7.8% and 8.2% of high level of environmental awareness.

2.8 a) The school teachers with less than 5 years experience and more than 5 years of experience have 32% and 25.8% of high level of personal cleanliness respectively.

b) The school teachers with less than 5 years experience and more than 5 years of experience have 28% and 25% of high level of environmental knowledge respectively.

c) The school teachers with less than 5 years experience and more than 5 years of experience have 20.4% and 30.2% of high level of skill respectively.

d) The school teachers with less than 5 years experience and more than 5 years of experience have 35.4% and 35.8% of high level of environmental values respectively.

e) The school teachers with less than 5 years experience and more than 5 years of experience have 35.6% and 30% of high level of environmental awareness respectively.
3. The following are the findings of the study findings which describe about the level of Teaching Science of School Teachers

3.1 a) 31.4% of male and 50.4% of female school teachers have high level of teaching science.

b) 31.4% of graduate and 50.4% of post graduate school teachers have high level of teaching science.

c) The school teachers who belong to hindus, christians and muslims religions have 52.4%, 10.2% and 19.2% of high level of teaching science.

d) 36.2% of urban and 45.6% of rural school teachers have high level of teaching science.

e) 13.6% of government, 18.8% of government aided and 49.4% of self-finance school teachers have high level of teaching science.

f) The school teachers who are members in NCC, NSS, NC and RRC have 16.8%, 43.2%, 10.8% and 10.4% of high level of teaching science respectively.

g) The school teachers with less than 5 years experience and more than 5 years of experience have 41% and 40.6% of high level of teaching science respectively.

1.1 The regression analysis reveals that the naturalistic intelligence and environmental awareness did not influence the teaching science of school teachers.
1.2 The differential analysis reveals that the male and female teachers do not
differ significantly in their naturalistic intelligence and in its dimensions
namely, admiration, outdoor activities, biophilia and scientific hobbies. But
the male and female school teachers differ significantly in their dimension
global warming. While comparing these mean scores, the mean score of male
school teachers (30.45) are better than the female school teachers (29.78) in
the dimension global warming.

1.3 The correlation test reveals that there is significant relationship between
naturalistic intelligence and teaching science of school teachers.

1.4 The correlation test reveals that there is significant relationship between
environmental awareness and teaching science of school teachers.

1.5 ANOVA test result reveals that the hindu, Christian and muslim school
teachers do not differ significantly in their naturalistic intelligence and in its
dimensions admiration, outdoor activities, biophilia and scientific hobbies. But
the hindu, christian and muslim teachers differ significantly in their
dimension *admiration*. The mean scores reveal that, the Christian teachers
(1.011) are better than hindus (0.073)and muslims (0.938 ) in the dimension
*admiration*.

1.6 The differential analysis reveals that the married and unmarried school
teachers do not differ significantly in their naturalistic intelligence and its
dimensions namely *admiration, outdoor activities, biophilia and scientific hobbies*.

1.7 The urban and rural school teachers do not differ significantly in their
naturalistic intelligence and its dimensions namely admiration, outdoor
activities biophilia and scientific hobbies.
1.8 ANOVA test result reveals that the government, government aided and self-finance school teachers do not differ significantly in their naturalistic intelligence and its dimensions namely, admiration, outdoor activities, biophilia and scientific hobbies.

2.0 The male and female school teachers do not differ significantly in their environmental awareness and its dimensions namely, knowledge, skills and environmental values. But the male and female school teachers do differ significantly in their dimension personal cleanliness. The mean scores reveal that, male school teachers (9.78) are better than the female school teachers (9.67) in their personal cleanliness.

2.1 ANOVA test result reveals that the hindus, chirstians and muslims school teachers do not differ significantly in their environmental awareness and its dimensions namely, knowledge, skills, environmental values and environmental awareness in total. But the hindus, chirstians and muslims school teachers do differ significantly in their dimension personal cleanliness. The mean scores reveal that, hindus school teachers (0.130) are better than the muslims (0.015) and Christians school teachers in their personal cleanliness.

2.2 The married and unmarried school teachers do not differ significantly in environmental awareness and its dimensions environmental values. But the married and unmarried school teachers differ significantly in the dimensions namely, personal cleanliness, environmental knowledge and skills. The mean scores reveal that, unmarried school teachers (9.86) are better than the married school teachers (9.67) in their personal cleanliness. The mean scores reveal that, married school teachers (9.82) are better than the unmarried school
teachers (9.66) in their *environmental knowledge*. The mean scores reveal that, unmarried school teachers (9.65) are better than the unmarried school teachers (9.54) in their *skills*.

2.3 The urban and rural school teachers do not differ significantly in their environmental awareness and its dimensions namely, personal cleanliness and skills. But the urban and rural school teachers differ significantly in environmental awareness and its dimensions namely, environmental knowledge and environmental values. The mean scores reveal that, urban school teachers (9.85) were better than the rural school teachers (9.65) in their environmental knowledge.

The mean scores reveal that, urban school teachers (15.47, 44.68) are better than the rural school teachers (15.05, 44.04) in their environmental values and environmental awareness in total respectively.

2.4 ANOVA test result reveals that the government, government aided and self-financing school teachers do not differ significantly in their environmental awareness and its dimensions namely, knowledge, skills and environmental awareness total. But the government, government aided and self-financing school teachers differ significantly in their dimensions namely, personal cleanliness and environmental values. The mean scores reveals that, government aided school teachers (0.209, 0.393) are better than the government school teachers (0.220, 0.209) in their personal cleanliness and environmental value respectively.
2.5 The male and female school teachers do not differ significantly in their teaching science.

2.6 ANOVA test result reveals that teaching science of hindus, chritians and muslims school teachers do not differ significantly.

2.7 The married and unmarried school teachers do not differ significantly in their teaching science.

2.8 The urban and rural school teachers do not differ significantly in teaching science.

2.9 ANOVA test result reveals that teaching science of government, government aided and self-financing school teachers do not differ significantly.

3.0 The chi-square test reveals that the educational qualification and naturalistic intelligence and its dimensions namely, admiration, outdoor activities, global warming, biophilia and scientific hobbies of school teachers do not associate significantly.

3.1 The chi-square test reveals that there is significant association between the membership of organization and naturalistic intelligence and its dimension admiration of school teachers. But do not associate significantly with the membership of organization and naturalistic intelligence and its dimensions namely, outdoor activities, global warming, biophilia and scientific hobbies of school teachers.

3.2 The chi-square test reveals that the teaching experience and naturalistic intelligence and its dimensions namely, admiration, outdoor activities, global
warming, biophilia and scientific hobbies of school teachers do not associate significantly.

3.3 The chi-square test reveals that there is do not significant association between the educational qualification and environmental awareness and its dimensions namely, personal cleanliness, environmental knowledge, skills and environmental values of school teachers do not associate significantly.

3.4 The chi-square test reveals that there is significant association between the membership of organization and environmental awareness and its dimensions, namely, personal cleanliness, environmental knowledge and skills of school teachers. The membership of organization and environmental awareness and its dimension namely, environmental values of school teachers do not associate significantly.

3.5 The chi-square test reveals that there is significant association between the teaching experience and environmental awareness and its dimensions namely, skills and environmental values of school teachers. But the teaching experience and environmental awareness and its dimensions namely, personal cleanliness and environmental knowledge and of school teachers do not associate significantly.

3.6 The chi-square test reveals that the educational qualification and teaching science of school teachers do not associate significantly.

3.7 The chi-square test reveals that the membership of organization and teaching science of school teachers do not associate significantly.
3.8 The chi-square test reveals that the teaching experience and teaching science of school teachers do not associate significantly.

5.3 RECOMMENDATIONS

i. Students should be encouraged to read magazines, stories related to environment, poem and science journals that deal with animals or natural phenomena.

ii. Field trips and study tours like visiting museums and zoo should be arranged by the teacher to increase students experience and perceptions of various organisms from natural environment.

iii. Students should be made aware of the positive and negative impacts of environment by conducting special programme like seminars, group discussions and debates.

iv. Science exhibitions should be organized in schools to stimulate students natural curiosity.

v. Science clubs and nature clubs should be established in schools to improve their naturalistic intelligence.

vi. The school should arrange outdoor activities like gardening, trekking, nature walk, camping and rafting in order to trigger naturalistic intelligence among students.

vii. Audio-video programs should be offered to the students regarding nature and biodiversity. For example natural scenes, various plants and animals species.

viii. Teacher should arouse interests in the young minds of students’ about nature and its conservation.
5.4 DISCUSSIONS OF RESULT

i. The low positive correlation of environmental awareness with teaching of science indicates and coincides with the result of *Nava-whitehead and Susan (2002)* and *Ponni(2001)*, this shows that the school teachers should concentrate more on environmental issues. For example, after the explanation of how content is prepared a teacher can list the hazards related to that which was not dealt in the textbook. After finishing the part energy, the teacher can enumerate how we can switch over the renewable resource and how we can reduce the use of non-renewable resource. This curricular and co-curricular activities of teacher related with the environment makes the class effectively.

ii. This study result related that there was no significant difference between male and female school teachers in their admiration, outdoor activities and scientific hobbies, which coincides with the result studies of Bhuvneswaralakshmi and Sailaja(2007) which ensures no such influence of sex in environment related variables and attitudes. But, the significant was difference between male and female school teachers in personal cleanliness which contradicts with the study result of Bhuvneswaralakshmi and sailaja(2007) ensures that female teachers are better in personal cleanliness. This result makes to have a serious look on this issues that male should have serious concern towards their personal cleanliness. by realizing their responsibilities in maintaining the environment green and clean for the next generation.

iii. The study results revealed that male teachers have more environment knowledge than female teachers. Which again coincides with the study result of *Maria Saroja (2012)*. This shows that the female teachers, should be allowed freely to have the access with environment. Since the knowledge of a
woman will help a family as per the sayings of *Nehru (1998)*, we have to make the women to have the access with environment freely.

iv. It was found that the urban teachers have high level of environmental knowledge and values than the rural teachers which coincides with the study result of *Maria Saroja (2012)*, which makes us to conclude that the rural teachers did not have much environmental knowledge than the urban teachers. We should educate them through various media on the issues related with the environmental problems that are faced by urban area. This will help them to develop not only their awareness but also the need and care for environment of future from the various hazards. As the medium of instruction we can include multimedia as an attractive aid to educate related issues which will have more positive results as per the result of *Leela Gnanalet and Ramakrishnan(2010)*.

v. The study result of *Shahnawaj(1990)* she revealed that teachers environmental awareness must be higher than the students. We are in the position to formulate various awareness and content-knowledge related program for teachers which will have an influential way for developing the future mankind for their better green and clean world for their better life.

vi. The percentage analysis shows that the environmental awareness of school teacher is moderate which contradicts with the study result of *Snehlatha Verma(2006)* which shows that the environmental awareness of school teachers was below average for the same. But the study result of *Praharaj(1991)* which emphasis the importance of environmental knowledge of teachers than students. Hence, the environmental awareness among school teachers should be developed towards the very best level, which in turn
imparts the knowledge among students who are the responsible citizens of any country’s future.

5.5 SUGGESTIONS FOR FURTHER RESEARCH

On the basis of the findings, the investigator has given the following topics which may be taken for further research.

i. A correlated study on naturalistic intelligence and environmental awareness among college students.

ii. A study on the role of teachers on developing naturalistic intelligence among higher secondary students.

iii. Parental involvement and development of naturalistic intelligence among college students.

iv. Role of Information and Communication Technology on developing environmental awareness among students at higher education level.

v. Importance of personal cleanliness and hygiene among high school students.

vi. Impact of e-waste on climate change among teachers at higher education level.

5.6 EDUCATIONAL IMPLICATIONS

i. The teachers knowledge may be updated in their field; so that the teaching of science may be enriched.
ii. The science pre-service and inservice teachers may be provided with special pedagogical programme and workshop by inviting the Non Government Organization’s and environmental related organizations.

iii. The teachers may be involved in the environmental related activities of a NGO by acting as a member.

iv. The pre-service teachers may be allowed to take up group projects and preparation of models regarding to their teaching.

v. A science exhibition and annual conferences on environmental issues may be organized for pre-service and in-service teachers.

vi. In order to develop naturalistic intelligence among the prospective teachers, the curriculum may be updated with innovative pedagogy.

vii. The pre-service teachers may be given a globalized view in terms of environmental awareness and naturalistic intelligence.

viii. The teachers may be allowed to teach the science subject with more experiments.

ix. The teachers could try to develop environmental awareness and intelligence through developing scientific aptitude.

x. The teaching must be included with ecological projects and activities.

xi. The environment service camps may be organized by the teachers in the villages and the needy areas through which environmental awareness may be developed.

xii. The teachers may attend seminars and workshops and demand the students to attend the seminars and workshops related to environment and science.
5.8 CONCLUSION

This chapter summarized the findings of the study, need for present investigation, and design of the study. It also given the educational implication and recommendation for further studies. The present investigation gave suggestion about level of naturalistic intelligence and environmental awareness of the teachers and the importance of environmental knowledge of teachers than students. For this the investigator realized that by giving more facilities or instruction through different teaching methods get the opportunity for teaching science in a better way.